IV. *An Account of ſome Obſervations of the* Eclipſes *of the* Firſt Satellite *of* Jupiter, *compared with the Tables, by the ſame.*

BY comparing 244 Eclipſes of the *firſt Satellite* of *Jupiter*, obſerved between the Years 1677 and 1731, with the *Flamſteedian* Tables, corrected by my ſelf, from which Tables the preceding Catalogue of Eclipſes is deduced, I find there are 74, which make up near one Third of the whole Number, that do not differ one Minute from the Tables; 127, which are above one Half, that do not differ two Minutes; 181, which are two Thirds of the whole Number, that do not differ three Minutes; and 214, which are ſeven Eighths, that do not differ four Minutes, the reſt not differing above five Minutes and one half, which is a Degree of Exactneſs ſufficient in my Opinion to recommend the Uſe of theſe Eclipſes to our Navigators, to determine the Difference of Longitude, eſpecially ſince they may be ſeen with a Teleſcope of three Feet, as is aſſerted in *Page* 169 of the *Connoiſſance Des Temps* for the preſent Year; and if this be true, I will venture to affirm, That an Immerſion or Emerſion, obſerved with this Teleſcope, will not differ one half Minute from the Time obſerved with the largeſt Teleſcope: However that be, it is but comparing an Obſervation of the ſame Eclipſe, made with theſe two different Teleſcopes together, and the Difference

of the Times will be diſcovered, which will ſerve for ever afterwards as a Rule to adjuſt the Obſervations.

The only View that I have in communicating this Paper, and in computing the Eclipſes for Time to come, is to encourage thoſe Perſons, who will find their Advantage in it, to make Uſe of this Help for obtaining the Longitude at Sea, till better Methods are offered.

V Experiments *and* Obſervations *upon the* Light *that is produced by communicating* Electrical Attraction *to animal or inanimate Bodies, together with ſome of its moſt ſurpriſing Effects; communicated in a Letter from Mr.* Stephen Gray, *F. R. S. to* Cromwell Mortimer, *M. D. R. S. Secr.*

SIR, *Charter-Houſe, Jan.* 28th, 1734-5.

IT is now ſome Months ago that I promiſed to give the *Society* an Account of what Experiments I had then made; but ſoon after there occurr'd to my Thoughts ſeveral others, which I was willing to try the Succeſs of; which Experiments requiring an Addition to the *Apparatus*, that I might make them more compleat, I hope will be a ſufficient Apology for this Delay.

I ſee you have publiſhed Mr. *Dufay*'s Letter to the Duke of *Richmond*, in the *Philoſophical Tranſactions*,